IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No.	:	10/663,416	Confirmation No. 2714
Applicant/Appellant	:	Randolph, et al.	
Filed	:	9/16/2003	
TC/A.U.	:	1793	
Examiner:	:	James E. McDonough	
Docket No.	:	CP34019	
Customer No.	:	23490	

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

May 4, 2010

APPEAL BRIEF (37 C.F.R. §41.37)

Dear Sir:

This brief is in furtherance of the Notice of Appeal, filed in this case on March 5, 2010.

The fees required under §41.20, and any required petition for extension of time for filing this brief and fees therefore, are paid with the filing herewith via EFS-Web.

This brief contains these items under the following headings, and in the order set forth below (37 C.F.R. §41.37):

I. REAL PARTY IN INTEREST
II. RELATED APPEALS AND INTERFERENCES
III. STATUS OF CLAIMS
IV. STATUS OF AMENDMENTS
V. SUMMARY OF CLAIMED SUBJECT MATTER
VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL
VII. ARGUMENT
VIII. CLAIMS APPENDIX
IX. EVIDENCE APPENDIX
X. RELATED PROCEEDINGS APPENDIX

The final page of this brief bears the practitioner's signature.

I. REAL PARTY IN INTEREST
(37 C.F.R. § 41.37(c)(1)(i))

The real party in interest in this appeal is the following party: UOP LLC (a wholly owned subsidiary of Honeywell International Inc.) by way of an assignment by the inventors to Conoco Phillips Company recorded in the United States Patent and Trademark Office at Reel 014518, Frame 0023 and then from ConocoPhillips Company to UOP LLC that was recorded at Reel 020462, Frame 0060.

II. RELATED APPEALS AND INTERFERENCES
(37 C.F.R. § 41.37(c)(1)(ii))

With respect to other appeals or interferences that will directly affect, or be directly affected by, or have a bearing on the Board's decision in this appeal:

A ☒ there are no such appeals or interferences

B ☐ these are as follows:

III. STATUS OF CLAIMS
(37 C.F.R. § 41.37(c)(1)(iii))

The status of the claims in this application are:

A. Total Number of Claims in the Application

Claims in the application are: 38

B. Status of All the Claims

1. Claims cancelled: 7 and 36
2. Claims withdrawn from consideration but not cancelled: 10-29
3. Claims objected to: none
4. Claims allowed or confirmed: none
5. Claims rejected: 1-6, 8, 9, 30-35, 37, and 38

C. Claims on Appeal

The claims on appeal are: 1-6, 8, 9, 30-35, 37, and 38

IV. STATUS OF AMENDMENTS
(37 C.F.R. § 41.37(c)(1)(iv))

Appellant (Applicants may be referred herein collectively as "Appellant") filed no amendments subsequent to Final Office Action mailed December 7, 2009.

V. SUMMARY OF CLAIMED SUBJECT MATTER
(37 C.F.R. § 41.37(c)(1)(v))

The present invention on appeal pertains to a composition yielding a high quality alkylate when utilized in the alkylation of olefins with paraffins, but which does not undergo rapid deactivation. *See, e.g.,* Application at page 3, lines 1-5. There are two independent claims, each pertaining to an exemplary composition. Also, there are dependent claims depending therefrom, including two for each independent claim that will be argued separately.

Claim 1 is independent and defines a composition including an acid component and a polymer. *See, e.g.,* Application at page 3, lines 18-20. The acid component is selected from the group consisting of 1) a sulfuric acid, 2) a fluorosulfonic acid, 3) a perhaloalkylsulfonic acid, 4) an ionic liquid, 5) mixtures of Bronsted acids and Lewis acids, and 6) combinations of any two or more thereof. *See, e.g.,* Application at page 4, lines 1-4. The polymer holds the acid component in place in the composition. *See, e.g.,* Application at page 6, lines 1-3. Moreover, the composition is in a reactor. *See, e.g.,* Application at page 10, lines 11-14 and page 11, lines 10-19. The acid component is present in a range of from about 5 weight percent to about 90 weight percent based on the total weight of the composition. *See, e.g.,* Application at page 6, lines 4-6.

Claim 8 depends on claim 1 and further defines that the acid component is present in a range of from about 30 weight percent to about 85 weight percent based on the total weight of the composition. *See, e.g.,* Application at page 6, lines 6-8.

Claim 9 depends on claim 1 and further defines that the acid component is present in a range of from about 50 weight percent to about 80 weight percent based on the total weight of the composition. *See, e.g.,* Application at page 6, lines 8-10.

Claim 30 is independent and defines a pourable composition. *See, e.g.,* Application at page 12, lines 8-10. The pourable composition consists of an acid component and a polymer.

See, e.g., Application at page 3, lines 18-20. The acid component is selected from the group consisting of 1) a sulfuric acid, 2) a fluorosulfonic acid, 3) a perhaloalkylsulfonic acid, 4) an ionic liquid, 5) mixtures of Bronsted acids and Lewis acids, and 6) combinations of any two or more thereof. *See, e.g.,* Application at page 4, lines 1-4. The polymer holds the acid component in place in the composition. *See, e.g.,* Application at page 6, lines 1-3. The acid component is present in a range of from about 5 weight percent to about 90 weight percent based on the total weight of the composition. *See, e.g.,* Application at page 6, lines 4-6.

Claim 37 depends on claim 30 and further defines that the acid component is present in a range of from about 30 weight percent to about 85 weight percent based on the total weight of the composition. *See, e.g.,* Application at page 6, lines 6-8.

Claim 38 depends on claim 30 and further defines that the acid component is present in a range of from about 50 weight percent to about 80 weight percent based on the total weight of the composition. *See, e.g.,* Application at page 6, lines 8-10.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL
(37 C.F.R. § 41.37(c)(1)(vi))

Whether claims 1-6, 8, 9, 30-35, 37 and 38 are unpatentable under 35 U.S.C. 102(b) as being anticipated by US 2001/0024755 (hereinafter maybe referred to as "*Bahar*").

VII. ARGUMENT
(37 C.F.R. § 41.37(c)(1)(vii))

The Examiner has failed to establish a *prima facie* case of anticipation. Specifically, *Bahar* does not establish a *prima facie* case of anticipation under 35 U.S.C. §102(b) with respect to claims 1-6, 8, 9, 30-35, 37, and 38 because *Bahar* does not teach all of the elements of the claimed invention. To constitute anticipation, all material elements of a claim must be found in one prior art source that is enabling to one skilled in the art. *See In re Marshall*, 578 F.2d 301, 304, 198 USPQ 344, 346 (CCPA 1978). Moreover, a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *See Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

A. Claims 1-6, 8, 9, 30-35, 37 and 38

1. *Bahar* fails to disclose a composition having an acid component and a polymer where the acid component is present in a range of about 5 weight percent to about 90 weight percent based on the total weight of the composition.

Bahar discloses at pages 1-2, paragraphs 16-25, a composite membrane including:

a) a microporous polymeric sheet having its pores extending from one side to the other;
b) the structure defining the pores being at least partially covered with a functional material selected from:
  i) inorganic particulate;
  ii) metal; and
  iii) an organic polymer; and
c) the pores of the sheet being at least partially filled with polymer electrolyte selected from:
  i) polymer compositions that contains metal salts;
  ii) polymeric gel that contains electrolyte, and
  iii) an ion exchange resin.

Bahar discloses that porous polymer films or sheets will preferably have a porosity of greater than 35%, more preferably between 40-95%, and preferably 70%. *See, e.g.*, page 3, paragraph

42. The Examiner asserts that the pores are filled with the acid component, and hence, read upon the weight limitations of the claims.

Bahar discloses that the polymer electrolyte can be an ion exchange resin, which in turn can be a sulfonic polymer. *See* page 4, paragraphs 67-71. The perhaloalkylsulfonic acid is relied upon by the Examiner as the basis for anticipation. *Bahar* further discloses that the solid polymer electrolyte can be placed in pores by roll application, spraying, dipping, or another technique with a solution or dispersion, and then removing the solvent. *See* page 6, paragraph 91. With an ion exchange medium, the pores can be partially or fully imbibed with the ion exchange resin in an alcohol solution. *See* page 6, paragraph 92.

Bahar fails to teach that the acid component is present in a range of about 5 weight percent to about 90 weight percent of the total composition, as defined by independent claims 1 and 30. First, the composition of *Bahar* includes three components, namely a polymeric sheet, a functional material, and a polymer electrolyte, which may include a sulfonic polymer. There is no disclosure in *Bahar* of the amount, by weight, of the sulfonic polymer with respect to the final composition. Moreover, it does not follow that a polymeric sheet having a porosity of 40 to 95% would equate to a composition having an acid component in a range of about 5 weight percent to about 90 weight percent of the total composition. Particularly, the acid component in *Bahar* is applied in a solvent, so the pores are not filled with an acid component. Rather, the pores are partially or fully filled with a solution. Finally, the weight percents can vary greatly depending on the density of the microporous polymeric sheet, functional material, and a polymer electrolyte. As a consequence, Appellant respectfully submits that the failure to teach these weight percents as defined by the present invention cannot anticipate it. Appellant respectfully submits that these arguments are also applicable to dependent claims 2-6, 8, 9, 31-35, 37 and 38.

2. In the alternative, *Bahar* only provides a generic teaching that cannot anticipate the claimed invention.

Bahar teaches a composite membrane including a polymeric sheet, a functional material, and a polymer electrolyte. *Bahar* further discloses a vast number of materials that may used as the polymeric sheet (*see*, e.g., pages 2-3, paragraphs 32-43) combined with a vast number of functional materials (*see*, e.g., pages 3-4, paragraphs 44-56) and a vast number of polymer electrolytes (*see*, e.g., pages 4-5, paragraphs 57-77). Moreover, the pores of the polymeric sheet having a porosity of at least 35% that may be at least partially filled (*see*, e.g., page 2, paragraph 22). Moreover, the polymer electrolyte is combined with a solvent when applied to the polymeric sheet (*see*, e.g., page 6, paragraph 91), further diluting the polymer electrolyte. Although *Bahar* provides an example of brushing a solution of PFSA (perfluorosulfonic acid), in a 9%, by weight, solution in ethanol, the example fails to specifically identify the porosity of the sheet, the amount of PFSA solution absorbed by the sheet in the pores, and the specific perfluorosulfonic acid to calculate the weight percent of PFSA absorbed on the sheet. Moreover, the densities of the sheet and PFSA are not provided. As an aside, Appellant's calculation of the metal salt $LiPF_6$ in the 1M solution is about 9 weight percent as well in Examples 1 and 2 of *Bahar*.

However, a generic formula that encompasses a vast number of compounds does not describe, and thus anticipate all compounds embraced therein merely because they are within the scope of the formula. *See In re Petering et al.*, 301 F.2d 676, 682-683, 133 USPQ 275, 281 (CCPA 1962). Similarly, *Bahar* discloses a vast array of polymeric sheets that can vary in porosity, namely at least 35%. Moreover, these polymeric sheets can receive a vast array of polymeric electrolytes that may absorbed to varying degrees upon the sheet depending on, e.g., the compatibility of the polymeric sheet and polymeric electrolyte. In addition, the polymeric electrolyte is dissolved in a solvent prior to application to the sheet. This dilution further reduces the amount of acid, if present in the polymeric electrolyte, that can be applied to the sheet. These variables and lack of information fail to provide the requisite blazemarks and guideposts to lead

one skilled in the art to the claimed invention. To anticipate, the identical invention must be shown in as complete detail as is contained in the claim. *See Richardson v. Suzuki Motor Co.,* 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). *Bahar* clearly fails to teach that the acid component is present in a range of about 5 weight percent to about 90 weight percent of the total composition, as defined by independent claims 1 and 30. Appellant respectfully submits that these arguments are also applicable to dependent claims 2-6, 8, 9, 31-35, 37 and 38.

B. Claims 8 and 37

1. *Bahar* fails to teach an acid component present in a range of from about 30 weight percent to about 85 weight percent based on the total weight of the composition.

As discussed above, *Bahar* discloses a vast array of different possible loadings of polymeric electrolyte on the polymeric sheet. In the Examples of *Bahar*, a 9 weight percent solution of PFSA or fluorinated sulfonic acid resin in ethanol is applied to a membrane. These examples would clearly not provide the requisite blazemarks and guideposts to anticipate a composition having an acid component present in a range of from about 30 weight percent to about 85 weight percent based on the total weight of the composition, as defined by claims 8 and 37.

C. Claims 9 and 38

1. *Bahar* fails to teach an acid component present in a range of from about 50 weight percent to about 80 weight percent based on the total weight of the composition.

Supererogatorily, as discussed above at heading **"B."**, *Bahar* discloses a vast array of different possible loadings of polymeric electrolyte on the polymeric sheet. In the Examples of *Bahar*, a 9 weight percent solution of PFSA or fluorinated sulfonic acid resin in ethanol is applied to a membrane. These examples would clearly not provide the requisite teaching to anticipate a composition having an acid component present in a range of from about 50 weight

percent to about 80 weight percent based on the total weight of the composition, as defined by claims 9 and 38.

D. Claims 30-35, 37 and 38

1. *Bahar* fails to teach a composition consisting of an acid component and a polymer.

In addition to the arguments made at the heading **"A."** above, *Bahar* discloses a composite membrane including a polymeric sheet, a functional material, and a polymer electrolyte. *Bahar* fails to teach a pourable composition consisting of an acid component and a polymer. Rather, *Bahar's* membrane includes a functional material, and thus cannot anticipate. The transitional phrase "consisting of" excludes any element, step, or ingredient not specified in the claim. *In re Gray*, 53 F.2d 520, 521, 11 USPQ 255, 256 (CCPA 1931); *Ex parte Davis*, 80 USPQ 448, 450 (Bd. App. 1948) ("consisting of" defined as "closing the claim to the inclusion of materials other than those recited except for impurities ordinarily associated therewith."). By including a functional material, *Bahar* cannot anticipate claim 30. Thus, Appellant respectfully submits that these arguments are also applicable to claims 31-35, 37 and 38.

In view of the above arguments, Appellant respectfully requests that the Final Office Action of the claims be reversed and the case advanced to issue.

VIII. CLAIMS APPENDIX
(37 C.F.R. § 41.37(c)(1)(viii))

The text of the claims involved in the appeal are:

1. A composition comprising:

a) an acid component selected from the group consisting of 1) a sulfuric acid, 2) a fluorosulfonic acid, 3) a perhaloalkylsulfonic acid, 4) an ionic liquid, 5) mixtures of Bronsted acids and Lewis acids, and 6) combinations of any two or more thereof; and

b) a polymer holding the acid component in place in the composition; wherein said composition is in a reactor,

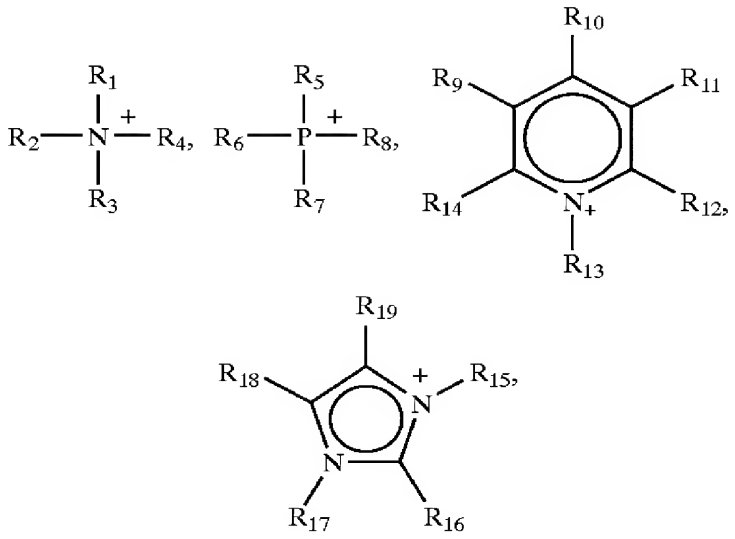
wherein said acid component is present in said composition in a range of from about 5 weight percent to about 90 weight percent based on the total weight of said composition.

2. A composition in accordance with claim 1 wherein said polymer is a polyacrylate having a formula of $[-CH_2-CH(CO_2R)-]_n$ where R is a Group IA element.

3. A composition in accordance with claim 2, wherein said Group IA element is hydrogen.

4. A composition in accordance with claim 1 wherein said acid component is trifluoromethanesulfonic acid.

5. A composition in accordance with claim 1 wherein said ionic liquid comprises a cation and an anion; wherein said cation is selected from the group consisting of ions defined by the formulas:



and combinations of any two or more thereof, wherein:

R_1, R_2, R_3, R_5, R_6 and R_7 are selected from saturated and unsaturated hydrocarbons containing from 1 to 7 carbon atoms per molecule;

R_4, R_8, R_9, R_{10}, R_{11}, R_{12}, R_{13}, R_{14}, R_{15}, R_{16}, R_{17}, R_{18}, and R_{19} are selected from saturated and unsaturated hydrocarbons containing from 1 to 7 carbon atoms per molecule, and hydrogen; and

wherein said anion is selected from the group consisting of halides of:

Group IIIA metals, copper, zinc, iron and phosphorus.

6. A composition in accordance with claim 1 wherein said mixtures of Bronsted acids and Lewis acids comprise a Bronsted acid selected from the group consisting of hydrofluoric acid, sulfuric acid, trifluoromethane sulfonic acid, and combinations of any two or more thereof.

7. (cancelled).

8. A composition in accordance with claim 1 wherein said acid component is present in said composition in a range of from about 30 weight percent to about 85 weight percent based on the total weight of said composition.

9. A composition in accordance with claim 1 wherein said acid component is present in said composition in a range of from about 50 weight percent to about 80 weight percent based on the total weight of said composition.

10. A method for making a composition, said method comprising the step of:

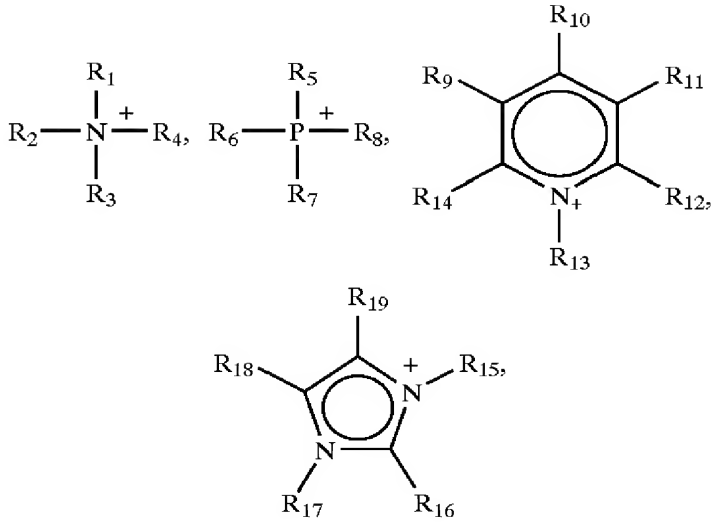
admixing an acid component selected from the group consisting of 1) sulfuric acid, 2) a fluorosulfonic acid, 3) a perhaloalkylsulfonic 5 acid, 4) an ionic liquid, 5) mixtures of Bronsted acids and Lewis acids, and 6) combinations of any two or more thereof and a polymer, to form a mixture thereof.

11. A method in accordance with claim 10 wherein said polymer is a polyacrylate having a formula of $[-CH_2-CH(CO_2R)-]_n$ where R is a Group IA element.

12. A method in accordance with claim 11 wherein said Group IA element is hydrogen.

13. A method in accordance with claim 10 wherein said base component is trifluoromethanesulfonic acid.

14. A method in accordance with claim 10 wherein said ionic liquid comprises a cation and an anion; wherein said cation is selected from the group consisting of ions defined by the formulas:



and combinations of any two or more thereof, wherein:

R_1, R_2, R_5, R_6 and R_7 are selected from saturated and unsaturated hydrocarbons containing from 1 to 7 carbon atoms per molecule;

R_4, R_8, R_9, R_{10}, R_{11}, R_{12}, R_{13}, R_{14}, R_{15}, R_{16}, R_{17}, R_{18}, and R_{19} are selected from saturated and unsaturated hydrocarbons containing from 1 to 7 carbon atoms per molecule, and hydrogen; and

wherein said anion is selected from the group consisting of halides of:

Group IIIA metals, copper, zinc, iron and phosphorus.

15. A method in accordance with claim 10 wherein said mixtures of Bronsted acids and Lewis acids comprise a Bronsted acid selected from the group consisting of hydrofluoric acid, sulfuric acid, trifluoromethane sulfonic acid, and combinations of any two or more thereof.

16. A method in accordance with claim 10 wherein said acid component is present in said composition in a range of from about 5 weight percent to about 90 weight percent based on the total weight of said composition.

17. A method in accordance with claim 10 wherein said acid component is present in said composition in a range of from about 30 weight percent to about 85 weight percent based on the total weight of said composition.

18. A method in accordance with claim 10 wherein said acid component is present in said composition in a range of from about 50 weight percent to about 80 weight percent based on the total weight of said composition.

19. A process comprising contacting under suitable alkylation reaction conditions a hydrocarbon mixture comprising olefins and paraffins with a composition prepared by the method of claim 10.

20. A process in accordance with claim 19 wherein said base component is selected from the group consisting of 1) a sulfuric acid, 2) a fluorosulfonic acid, 3) a perhaloalkylsulfonic acid, 4) an ionic liquid, 5) Bronsted acid and Lewis acid mixtures and 6) combinations of any two or more thereof.

21. A process in accordance with claim 20 wherein said base component is trifluoromethanesulfonic acid.

22. A process in accordance with claim 19 wherein said polymer is a polyacrylate having a formula of $[-CH_2-CH(CO_2R)-]_n$ where R is a Group IA element.

23. A process in accordance with claim 22 wherein said Group IA element is hydrogen.

24. A process in accordance with claim 19 wherein said base component is present in said composition in an amount in the range of from about 5 to about 90 weight percent of the total weight of said composition.

25. A process in accordance with claim 19 wherein said base component is present in said composition in an amount in the range of from about 30 to about 85 weight percent of the total weight of said composition.

26. A process in accordance with claim 19 wherein said base component is present in said composition in an amount in the range of from about 50 to about 80 weight percent of the total weight of said composition.

27. A process in accordance with claim 19 wherein the alkylation reaction temperature is in the range of from about 5°C to about 150°C and the alkylation reaction pressure is in the range of from about ambient pressure to about 50 atmospheres.

28. A process in accordance with claim 19 wherein the molar ratio of paraffin to olefin in said hydrocarbon mixture is in the range of from about 2 to 1 to about 25 to 1.

29. A process in accordance with claim 19 wherein said olefins are mono-olefins having from 2 to 12 carbon atoms, and wherein said paraffins are isoparaffins having from 4 to 8 carbon atoms.

30. A pourable composition consisting of:

a) an acid component selected from the group consisting of 1) a sulfuric acid, 2) a fluorosulfonic acid, 3) a perhaloalkylsulfonic acid, 4) an ionic liquid, 5) mixtures of Bronsted acids and Lewis acids, and 6) combinations of any two or more thereof; and

b) a polymer holding the acid component in place in the composition,

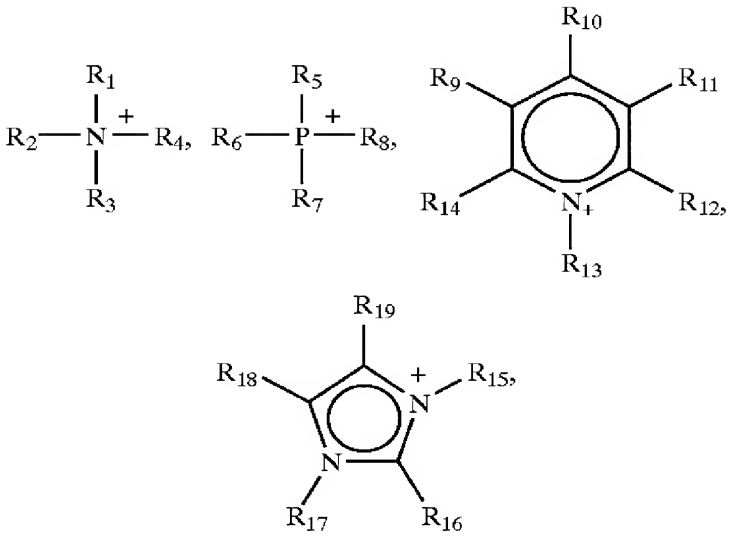
wherein said acid component is present in said composition in a range of from about 5 weight percent to about 90 weight percent based on the total weight of said composition.

31. A composition in accordance with claim 30 wherein said polymer is a polyacrylate having a formula of $[–CH_2–CH(CO_2R)–]_n$ where R is a Group IA element.

32. A composition in accordance with claim 31, wherein said Group IA element is hydrogen.

33. A composition in accordance with claim 30 wherein said acid component is trifluoromethanesulfonic acid.

34. A composition in accordance with claim 30 wherein said ionic liquid comprises a cation and an anion; wherein said cation is selected from the group consisting of ions defined by the formulas:



and combinations of any two or more thereof, wherein:

R_1, R_2, R_3, R_5, R_6 and R_7 are selected from saturated and unsaturated hydrocarbons containing from 1 to 7 carbon atoms per molecule;

R_4, R_8, R_9, R_{10}, R_{11}, R_{12}, R_{13}, R_{14}, R_{15}, R_{16}, R_{17}, R_{18}, and R_{19} are selected from saturated and unsaturated hydrocarbons containing from 1 to 7 carbon atoms per molecule, and hydrogen; and

wherein said anion is selected from the group consisting of halides of:

Group IIIA metals, copper, zinc, iron and phosphorus.

35. A composition in accordance with claim 30 wherein said mixtures of Bronsted acids and Lewis acids comprise a Bronsted acid selected from the group consisting of hydrofluoric acid, sulfuric acid, trifluoromethane sulfonic acid, and combinations of any two or more thereof.

36. (cancelled).

37. A composition in accordance with claim 30 wherein said acid component is present in said composition in a range of from about 30 weight percent to about 85 weight percent based on the total weight of said composition.

38. A composition in accordance with claim 30 wherein said acid component is present in said composition in a range of from about 50 weight percent to about 80 weight percent based on the total weight of said composition.

IX. EVIDENCE APPENDIX
(37 C.F.R. § 41.37(c)(1)(ix))

None.

X. RELATED PROCEEDINGS APPENDIX
(37 C.F.R. § 41.37(c)(1)(x))

None.

Respectfully Submitted,

May 4, 2010
Date

/James E. Ruland/
James E. Ruland
Representative Capacity for Appellant
Reg. No. 37,432

James E. Ruland
Attorney
The Law Office of James E. Ruland, PLC
P.O. Box 392
Falls Church, VA 22040
Tel. 703-560-7771